VERSION 2
24 Sept 2009

User Guide

Fleshing Machine PAMU SA100

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DECLARATION OF COMPLIANCE.

EU Declaration of Compliance.

Manufacturer: PAMUTEC A/S Tel.: +45 96 13 30 30/ 40 95 31 35
Address: Løgagervej 48, 7480 Vildbjerg

Machine: Automatic fleshing machine
Model: SA100
Type: B

PAMUTEC A/S hereby declares that the above-named product is compliant with the following EU Directives:

89/336/EEC EMC Directive
73/23/EEC Low-Voltage Directive

98/37/EC Machine Directive

Place and date: Vildbjerg, 1 January 2009

Name: Poul Agerbo

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FOREWORD.

Congratulations on the purchase of your new PAMUTEC Fleshing machine PAMU SA100.

This user guide is an important part of your new PAMU SA 100 fleshing machine. Therefore, read this manual carefully before using the machine. You can then use this guide for reference when you are operating the machine.

If you have any questions which are not answered by this user guide, we are of course always on hand to provide you with further information.

The user of the machine must ensure that operators, servicing staff and anyone else who has access to the machine has received instruction on how to use and operate the machine correctly.

Best regards

Poul Agerbo/PAMUTEC

IMPORTANT INFORMATION.

Irrespective of any problems that may occur with the machine or during its operation, you must not attempt to rectify these faults until the machine has been properly switched off at the main switch, unless the issue can be rectified using the machine's control buttons.

The user of the machine must ensure that operators/staff members and anyone else who has access to the machine has received instruction on how to use and operate the machine correctly. Please see also the sections below for further information.

To prevent any damage to the microcontrols and the rest of the electrical system in the event of a thunderstorm, it is recommended that you remove the mains plug when the machine is not in use.

IMPORTANT INFORMATION.

This machine is designed for fleshing mink and for reasons of safety it must be used for this purpose only.

This manual should be stored together with the machine. Therefore, it is important to ensure that this guide accompanies the machine when it is sold on or hired out.

If any parameters are reset “behind” the service password which secures several vital elements, all guarantees will be voided.

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LEGEND.

Please read this user manual and follow the instructions prescribed. To emphasise importance in the sections below, we have used the following legend to draw the reader's attention to any potentially hazardous situations:

NOTE! - A triangle containing an exclamation mark is a warning symbol which warns of important instructions or information relating to this machine.

HAZARD! - A triangle containing a flash of lightning is a warning symbol which warns of "High Voltage".

WARNING! - A triangle containing a warning about a risk of trapping.

WARNING! - High noise level. Always wear ear defenders.

BEFORE FIRST USE:

Before using the fleshing machine for the first time, you must ensure that it is located on a firm, stable base. The adjustable machine feet must be set so that the machine is level. Check the air connection as the machine cannot start if it has no air supply. Make sure that rollers and end covers for rollers are tightened and that there are no loose parts in the machine.

When connecting pressurised air, you should remain at an appropriate distance from the machine as this may cause inadvertent cylinder movements.

This is also applicable when the power is switched on.

Disconnect the compressed air and power supply to the machine prior to commencing machine maintenance, cleaning and other servicing.

After the fleshing machine has been connected to a power supply but before starting actual fleshing work, the direction of rotation of the fleshing motors must be checked. Also check the direction of rotation of the suction device motors. If the direction of rotation of the fleshing rollers is to be reversed, this is done by reversing two phases in the CEE socket on the power supply cable and not in the control cabinet. The same applies to the supply socket for suction devices for fat scrapers.
If motor brushes are moving in the wrong direction, the flexible shafts may break and will then need to be replaced.

Before starting to use the fleshing machine, the settings of the fleshing rollers should be checked. Cf. The section in Appendix 1 on setting fleshing rollers.

OPERATING/STARTING THE MACHINE.

Press “DRIFT” [OPERATION] in screen 1 unless the main screen is displayed, then press Auto. The machine is now ready to operate.
Where appropriate, see Appendix 1, Use of controls.

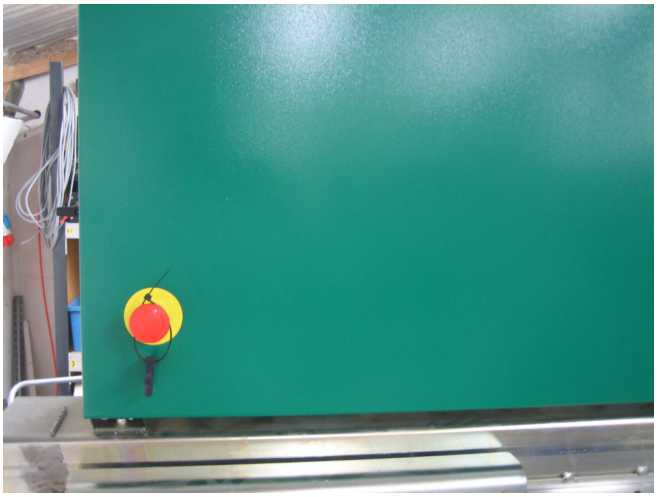
The pelt is pulled onto the stick with the back side facing upwards and is attached such that the two pins for the ends of the stick protrude through the eye holes. The pelt must be straight on the stick as far as possible so that the front legs are located on the side of the stick—the tail is placed centrally on the surface of the stick. When the pelt has been pulled onto the stick, the fleshing process may begin.

Press the green “Start” button. The stick will now move forwards evenly and quickly while defleshing the pelt. Once the pelt has passed the fleshing rollers, it is fed in through the fat scraper where the loose fat is scraped off. It is then fed through the water brushes before finally being pulled off the stick via the pelt puller. The stick then returns to its starting position.

WARNING!!
Always wear ear defenders during fleshing as high noise levels are generated as the pelt passes the fleshing rollers.

EMERGENCY STOP.

Emergency stop position



Left side of controls

Right side of controls

Procedures relating to how to restart the machine when the emergency stop button has been pressed.

The machine is set to manual stick operation and the stick is returned to its starting position, i.e. all the way back. You can then set the machine to Auto, and then the machine should operate normally again.

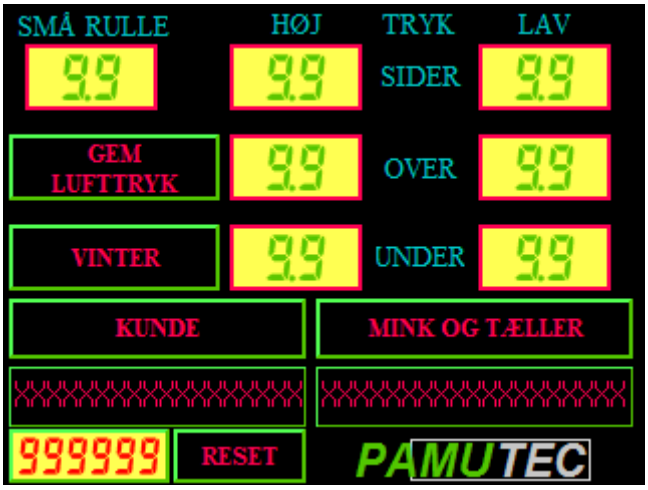
REMEMBER REMEMBER REMEMBER
In thunderstorms, you should disconnect all electrics. Controls and other electronics are very susceptible to voltage fluctuations and can break very easily.

SETTING THE PRESSURE.

The fleshing pressure (the pressure at which the fleshing rollers press on the pelt) is designated HIGH [HØJ] or LOW [LAV] below.

HIGH is the pressure used on the front part of the pelt, from the nose to just after the front legs.

LOW is the pressure used on the rest of the pelt.
The pressure is set in touch screen no. 2.



The values stated are merely for illustration purposes.

Note that the fleshing pressure may vary widely between the various types of mink. The fleshing pressure is also dependent upon which fleshing rollers are fitted to the fleshing machine. Therefore, the diagram below is for **guidance only** and should therefore only be used in connection with starting when the fur season starts. Therefore, the machine operator must regularly check the fleshing quality, and depending on the nature of the pelts, it may be necessary to adjust the fleshing pressure.

As a rule of thumb, "LOW" should normally be lower than "HIGH".

MALE PELT	HIGH PRS SIDES	APPROX. 3.5 BAR	LOW PRS SIDES	APPROX. 2.5 BAR
	HIGH PRS ABOVE	APPROX. 3.5 BAR	LOW PRS ABOVE	APPROX. 2.5 BAR
STICK SPEED	HIGH PRS BELOW	APPROX. 3 BAR	LOW PRS BELOW	APPROX. 2 BAR
Males, 30 Hz				
FEMALE PELT	HIGH PRS SIDES	APPROX. 2.5 BAR	LOW PRS SIDES	APPROX. 2 BAR
	HIGH PRS ABOVE	APPROX. 2.5 BAR	LOW PRS ABOVE	APPROX. 2 BAR
STICK SPEED	HIGH PRS BELOWCA	APPROX. 2 BAR	LOW PRS BELOW	APPROX. 1.1 BAR
Females, 28 Hz				

The fleshing pressure is also dependent upon the stick speed. The higher the stick speed, the higher the pressure of the fleshing rollers needs to be.

MAINTENANCE.

Maintenance of the machine is very important; both daily and also after the end of the season.

DAILY MAINTENANCE.

You must ensure that **no** sawdust is able to enter the machinery or extractor. This must be checked **several** times a day, or by experience.
All sliding rails *must* be lubricated before starting the day's work.
The machine must be blown clean of contamination three to four times a day inside, behind the doors, as well as cleaning the KvikRenser and outside the machine.

Start and end of season

START

Before starting to use the machine at the start of the season, check the following:

- The compressed air filter water separator is emptied and cleaned.
- Inspection of cleaning.
- Rails are cleaned of any rust or other impurities. If there is any rust on the rails, this must be removed with a fine emery cloth.
- All rails are lubricated with a thin layer of acid-free oil or grease.
- Check that fleshing motors, stick and fat scraper are able to move freely.
- Check the motor suspension for ruptures.
- Check the quality (cut and deformation of the surface) of the fleshing rollers.
- The stick is inspected.
- Rubber on the KvikRenser, suction heads and fat scraper are inspected for breaks or deformation.
- Suction hoses/tubes are inspected for leaks and deformation.
- Check all cables and air hoses for breaks or leaks.

Finally, start up the machine as described under Starting up

REMEMBER – The Start button must NEVER be pressed with no pelt on the stick!!

END

Once the season is over, a few basic things have to be done to ensure that no problems arise with the machinery.

- All sliding rails and cylingers **must** be lubricated with oil, and the sliding trolleys must be blown clean of water and lubricated by moving them back and forth a few times once the rails have been lubricated.
- All water in the extraction system, nozzles and hoses for the SA100, nozzles and hoses for the KvikRenser and hoses for the hot water container **must** be emptied to prevent frost bursts.

- All fat must be removed from various suction heads and hoses.
- The stick must be lubricated with a thin layer of grease or thick oil.
- The entire fleshing machine and all accessories must be cleaned, ideally using a hot cleaner (high pressure cleaner using hot water). However, the pressure must not exceed 100 bar, water must not be sprayed directly on plastic hoses and rollers, and water must not be sprayed into the housings of various electric motors.
- Flat guards must be cleaned with a damp, wrung-out cloth.

REPLACING RUBBER ON FAT SCRAPER AND KVIKRENSER

Always remember to keep an eye on the rubber on both the fat scraper and the KvikRenser; if this is damaged, it may have fatal consequences for the stick (large scratches where fat can collect—these cannot be repaired later as the stick is hard chrome-plated).
The front piece of rubber on the fat scraper must be replaced after every 20 000 pelts, and other pieces of rubber must be replaced at least every season and/or depending on how much the machine is used (the rubber must also be replaced if there is the slightest chance of cracks in it).

REPLACEMENT OF FLESHING ROLLERS AND RUBBER FLESHING ROLLERS

The large fleshing rollers will need to be replaced when the roller cutters are worn or deformed, or when you are switching to a set of rollers of a different hardness. The capacity for a set of fleshing rollers is normally approx. 12000 - 15000 pelts. This is dependent to some extent on the supplier. This can be set in the controls so that a warning is displayed when appropriate (you input your own figure).

The rubber on small fleshing rollers must be replaced after every 20 000 pelts; you can also set this in the controls.

Note that failing to cut off the paws, or cutting off the paws incorrectly, will help to considerably shorten the service life of the fleshing rollers as there is a risk of breaking the roller cutters. Likewise, incorrect storage of the rollers will shorten their service life. It is recommended that the rollers be stored in a dry, dark, cool place. The section below describes how to replace the fleshing rollers.

Disconnect the compressed air and power supply to the machine prior to starting any maintenance, cleaning or other servicing work on the machine.

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REPLACEMENT OF RUBBER FLESHING ROLLERS.

Open the casing for the rubber fleshing rollers, the suction head plate (Fig. 10.1) must be removed and then the nut on the end of the fleshing roller is undone (M12, using a 19 mm open-jaw spanner). It may be necessary to hold onto the fleshing roller as this has no "lock" and will simply rotate.
Once the roller has been undone it should slide off the shaft. This may be a little tough as it is important for the rubber roller to be secured properly to the machine. Take care if using tools as this may damage both the guard and the shaft.
When the new rubber rollers are to be fitted, it is important to ensure that they are facing the right direction. They have to cut in the direction of rotation; see Figs. 10.2 and 10.3 (these illustrations can be found in the Small folder inside the electrical cabinet).
There are also a number of carrier holes that must be positioned correctly. One bank of rubber rollers is made especially for the PAMUTEC SA100 and can be ordered from:

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Telephone 96 13 30 30

Once the rubber rollers have been fitted they must be tensioned correctly otherwise they will work loose during operation. The end place on the suction heads must then be refitted, and then the machine can be operated with fresh cutters.
Close the doors and REMEMBER that they must be tensioned in the opposite sequence to that in which they were opened. After this, the compressed air and power supply can be reconnected.

REMEMBER to reset the roller clearance.

REPLACEMENT OF CUTTERS ON SMALL FLESHING ROLLERS.

Open the casing for the fleshing rollers, remove the small fleshing rollers (replacement is not possible with the rollers fitted in the machine), wash the aluminium impeller thoroughly in hot water, then undo the small screws in wedges on the aluminium impeller and then turn—or, if necessary, replace—the rubber knife. When they are to be re-tensioned, it is very important to ensure that they are positioned equally as grease may otherwise be transferred to the pelt. Remember to grease the screws slightly when you reinsert them.
NB: It is sometimes necessary only to sand the rubber cutters with a piece of fine emery cloth.

Pamutec recommends that you keep an extra set of rollers in stock. This will allow you to get back up and running again quickly.

TECHNICAL SPECIFICATIONS.

Dimensions and weight:

Weight of machine	approx. 1 500 kg
Dimensions, HxLxD in cm (height is without chip container)	197x482x115
Dimensions when open (height is without chip container)	197x482x410

Power:

Power consumption:	35/8 A
Power connection:	1 x 32 A 5-pole CEE plug 1 x 16 A 5-pole CEE plug

Compressed air:

Pressure:	max. 10 bar
Air quantity	approx. 10 l/min

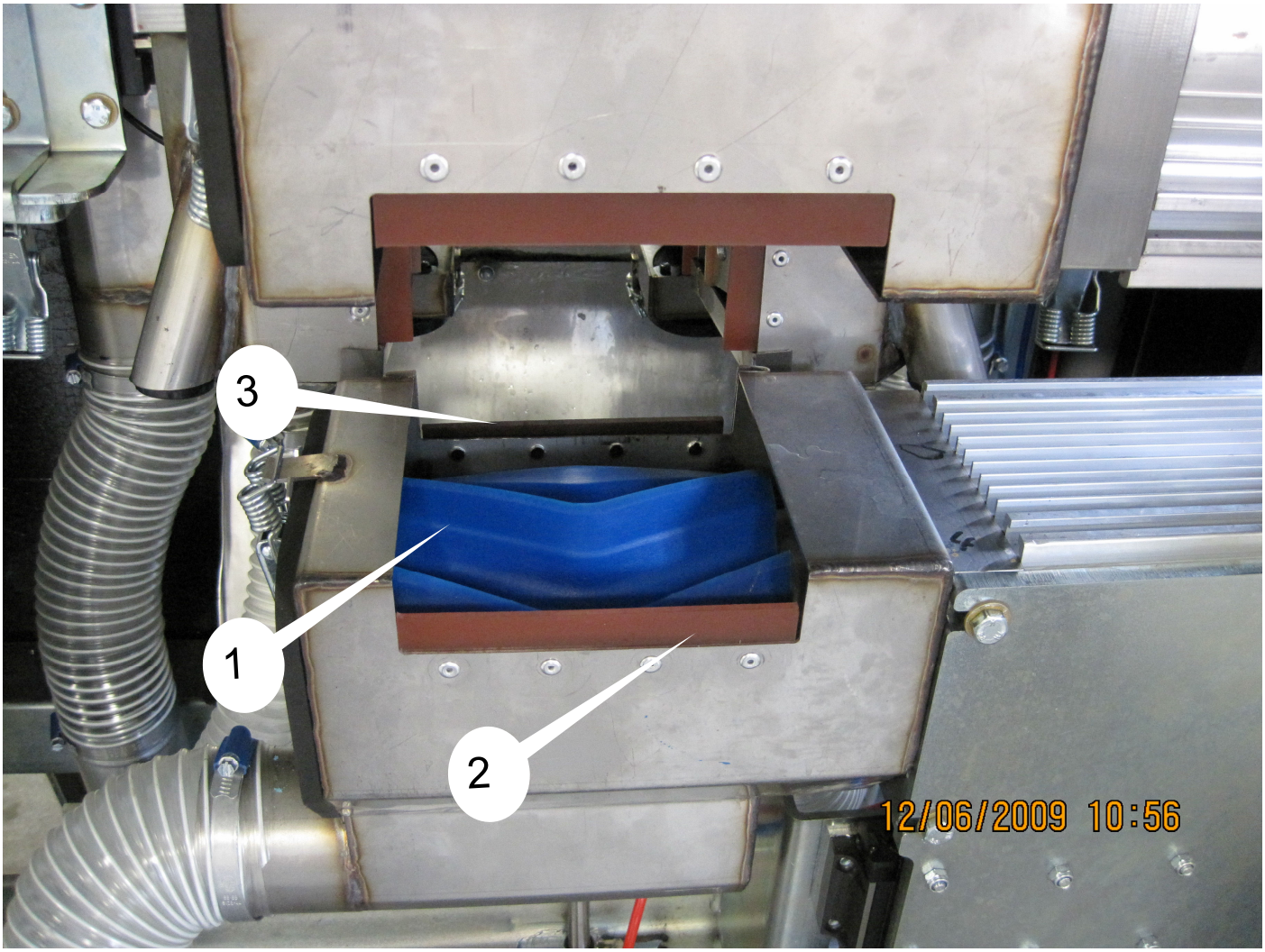
Hot water:

min. 30 litre hot water container is fitted to the machine
approx. 80 degrees

Noise:

Noise level:	max. 91 dB

Wear parts: Fleshing roller



1. Fleshing roller.
2. Fleshing rubber, back.
3. Fleshing rubber, front.

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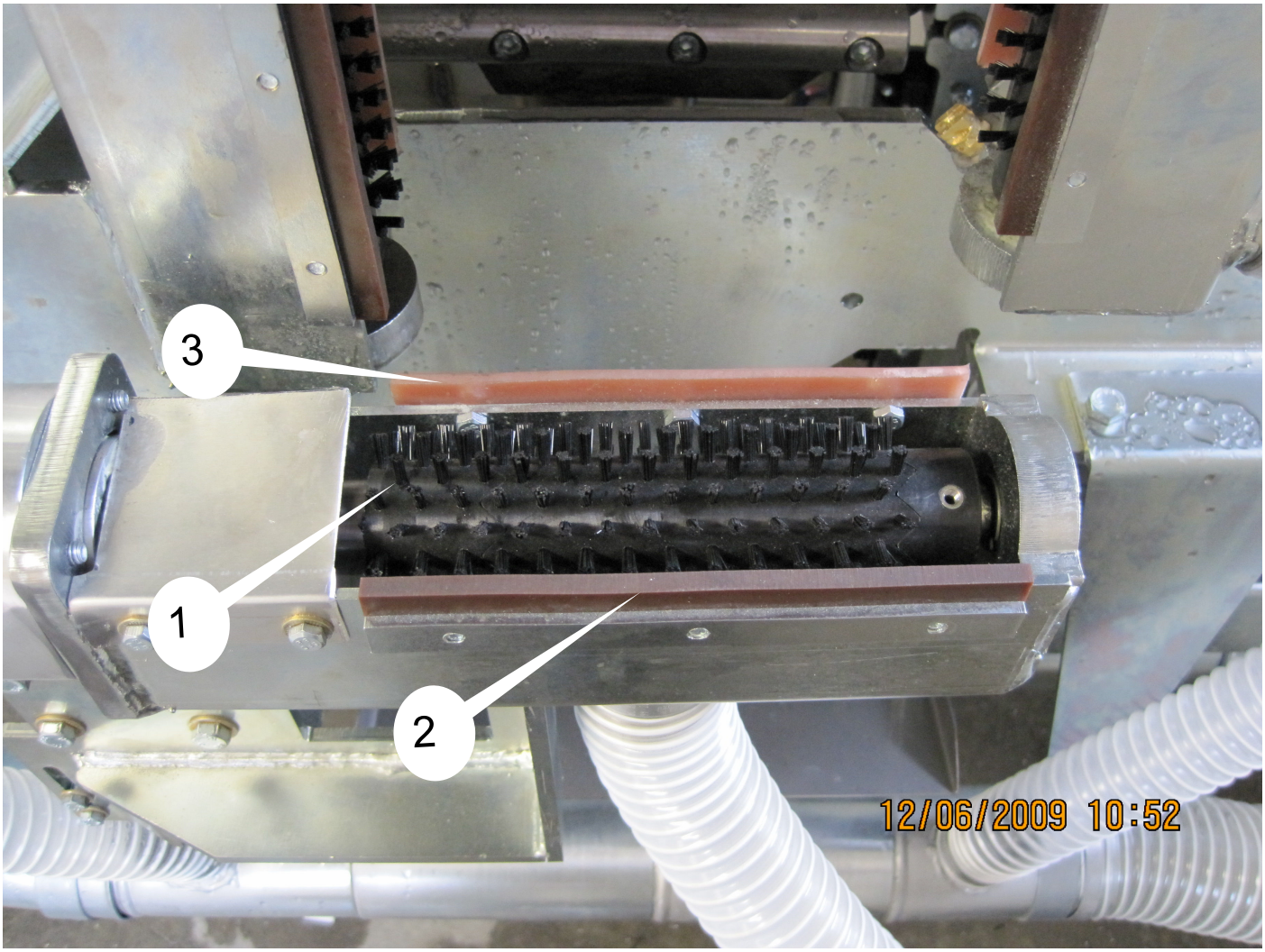
Brushes



1. Horizontal brushes, short model (vertical = long model)
2. Safety rubber, must not be worn down as this may destroy the stick.
3. Fleshing rubber, front.

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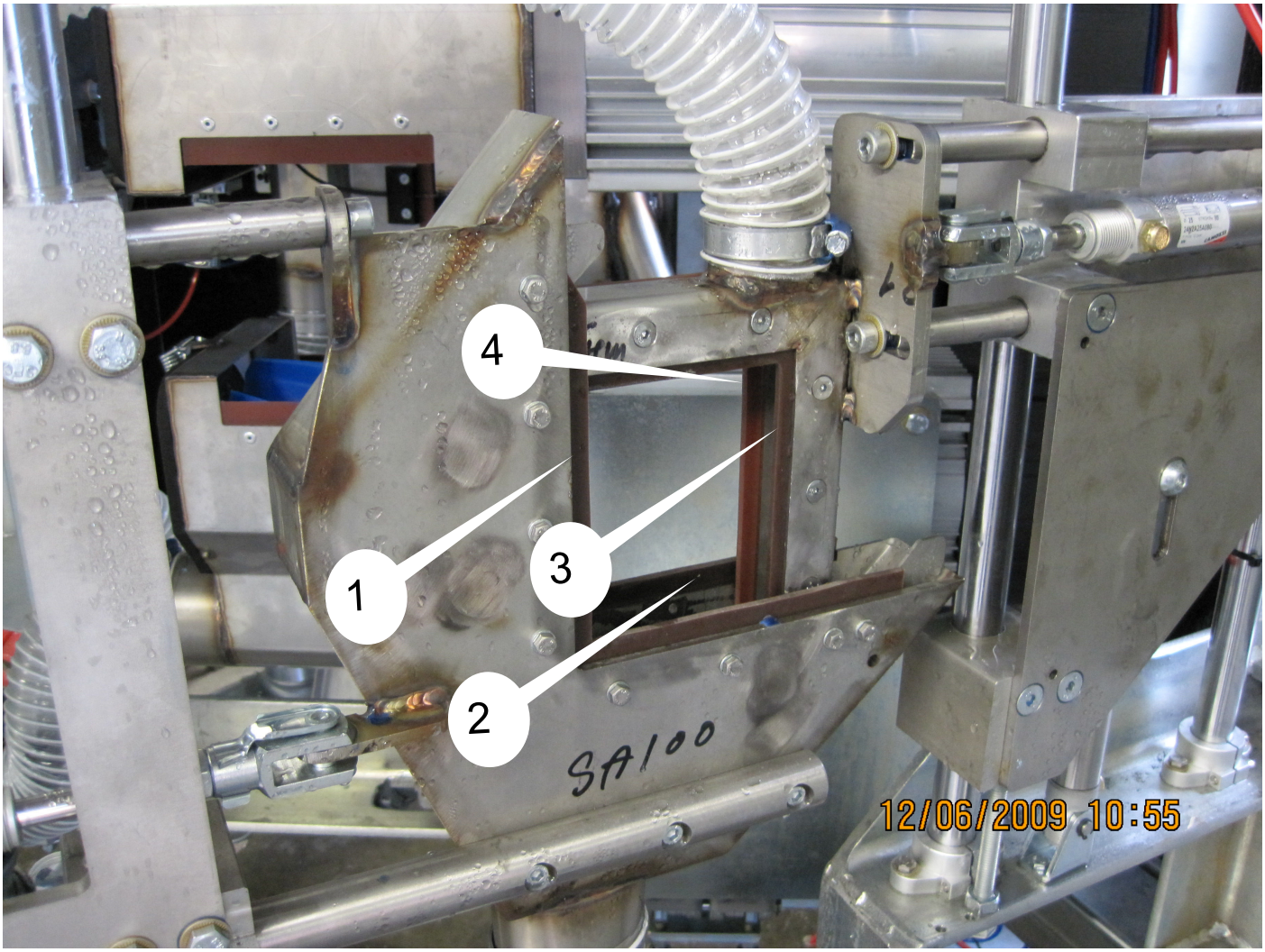
Fat scraper



1. Rear piece of rubber on lower head.
2. Front piece of rubber on lower head.
3. Rear piece of rubber on upper head.
4. Front piece of rubber on upper head.

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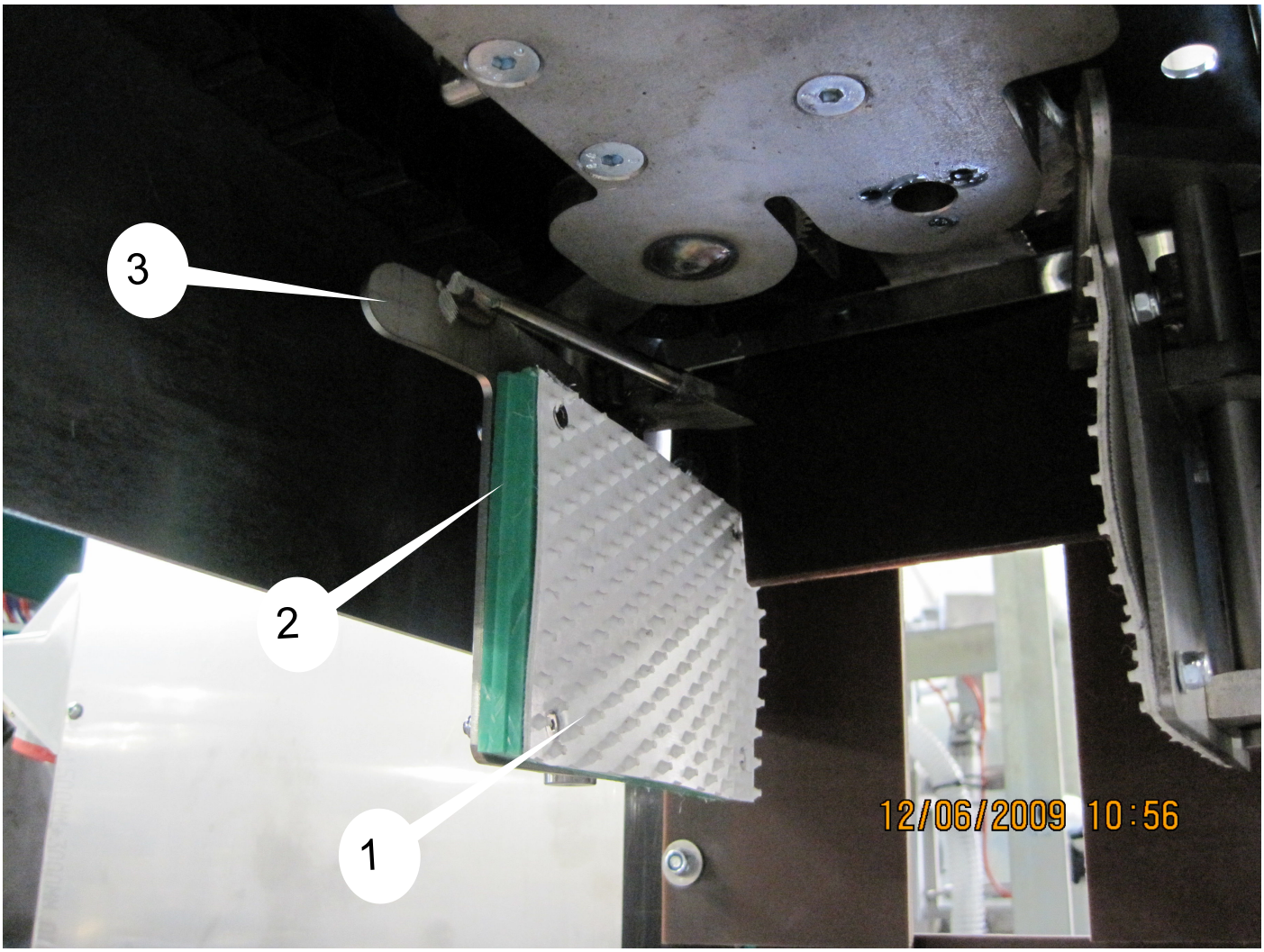
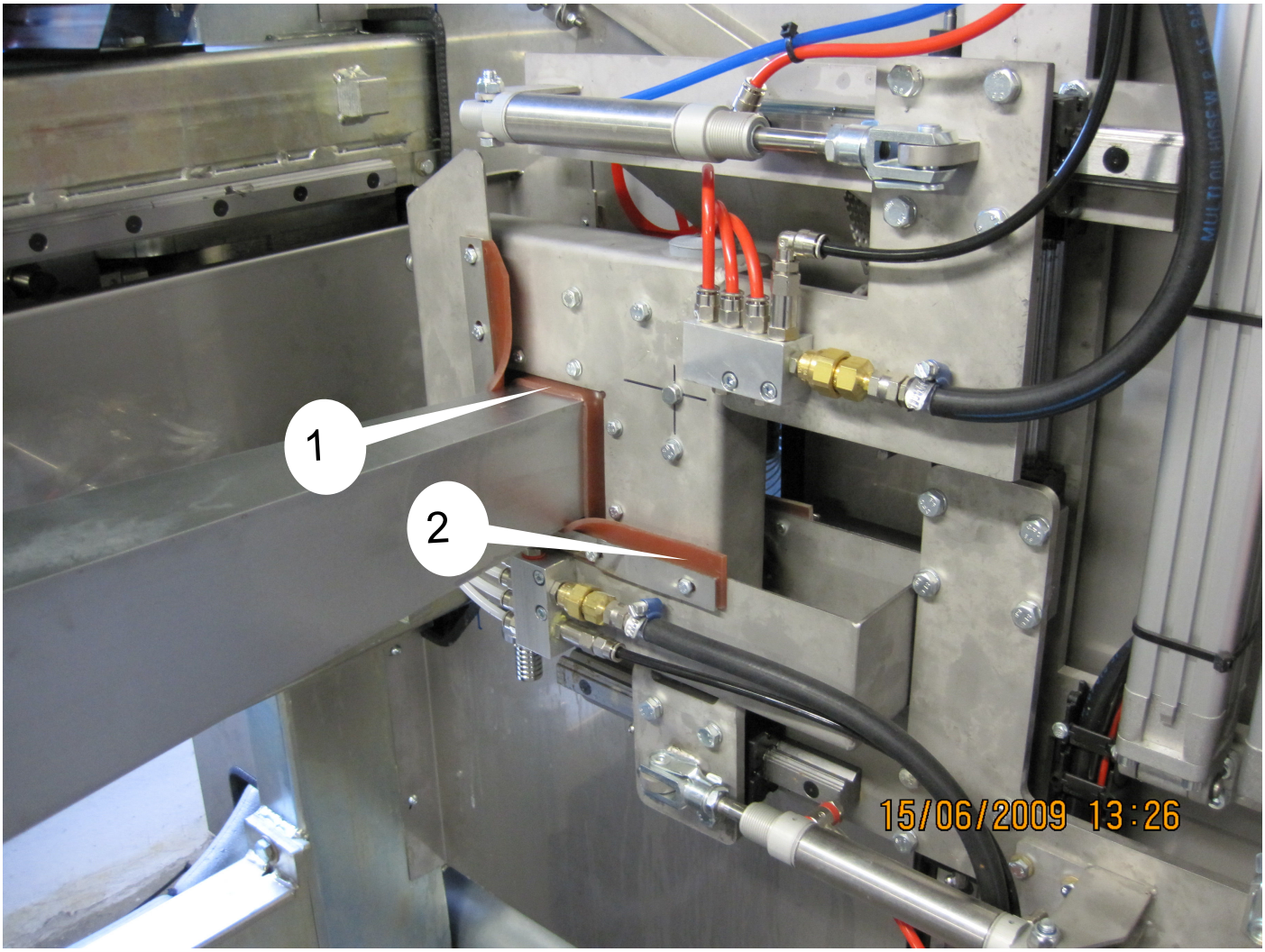
Puller



1. Puller rubber.
2. Shim for centring puller.
3. Plate.



1. Fleshing rubber for upper head, front, Soft SH 70.
2. Fleshing rubber for lower head, front, Soft SH 70.
3. Rubber located on the back (cannot be seen in this illustration) is Hard SH90

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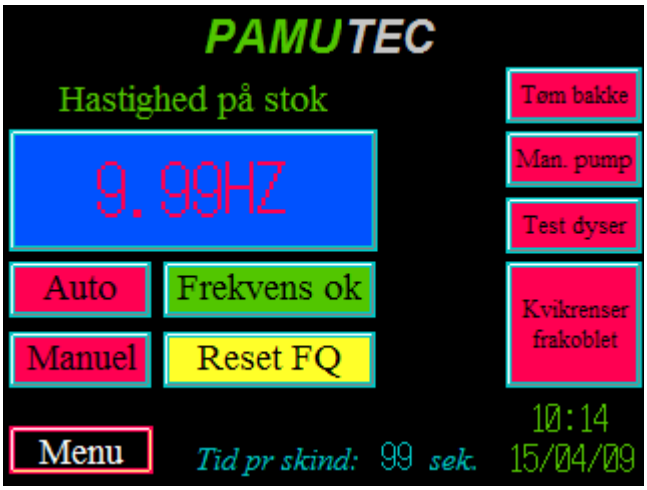
USE OF CONTROLS

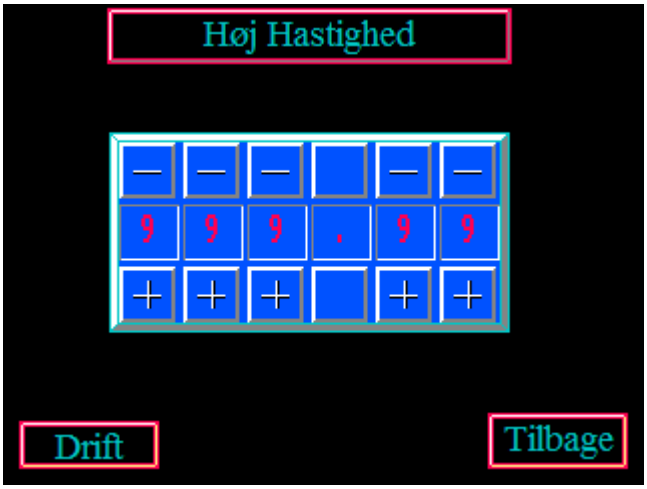


This menu determines whether the machine is to operate in auto or manual mode. If you set it to auto, you have to make sure everything is in the start position.
You can also test whether nozzles are adjusted as they should be, and you can clear the waste container of fat and water.
Click on menu to view the next screen.

You have various options here. Back to operation, stick speed, view how many pelts have been run in total (this counter cannot be reset), adjustment of various positions, adjustment of rollers, service counter (you can set when to trigger alarms here) and finally, KvikRenser functions.

Open all doors first. Remember to open them fully as the stick may otherwise become jammed and be damaged.
Then click on “Indstil store sideruller” [Set large side rollers] and press the green button on the last green cabinet where you see “kør stok frem” [Move stick forwards], then hold down this button until the stick stops. Then go round and adjust the clearance between the roller and the stick; this is done on the air cylinder. Note that the value which appears on screen cannot be changed as this requires a password.

Select males or females.



Example: stick speed setting.

Click on OK and then set the machine to Auto.

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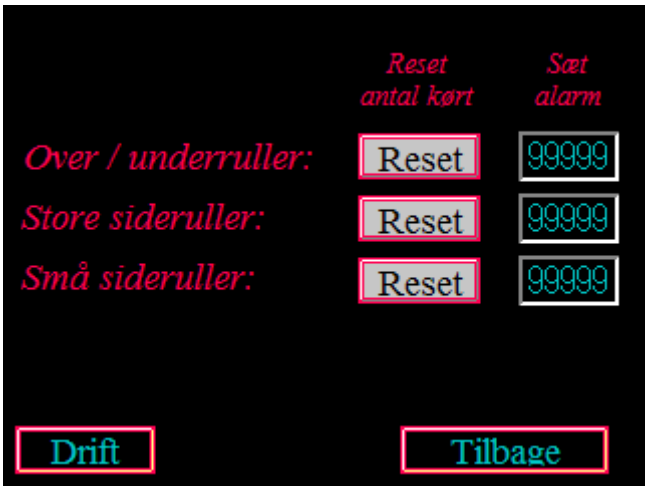

This menu must be used to set a value at which the alarm is displayed on screen. You also press Reset here to continue operating after an alarm has been triggered.

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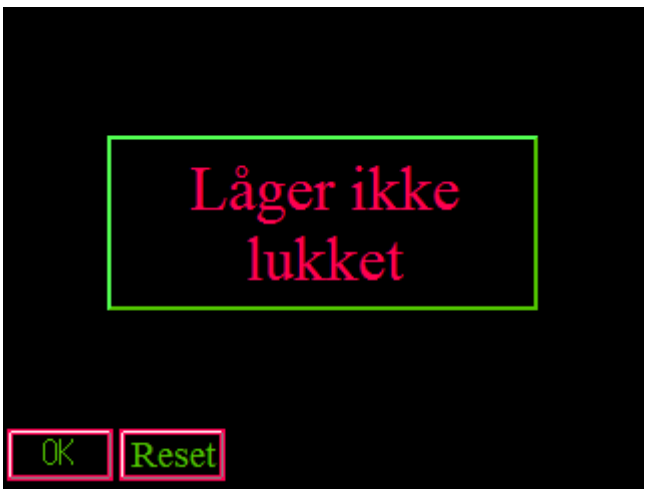
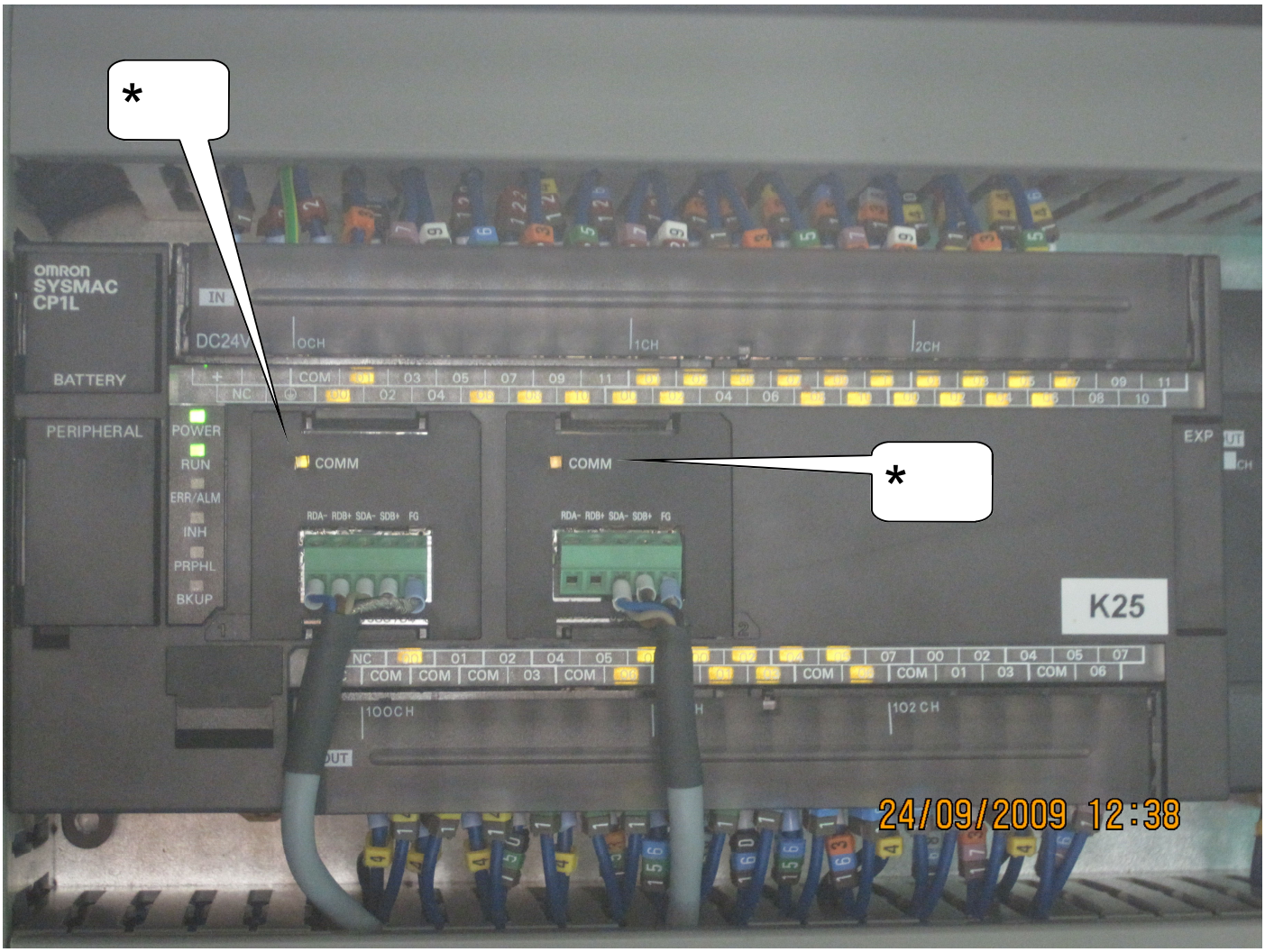
If no compressed air is connected, this message will be displayed on screen.
Click on OK and then continue operating.

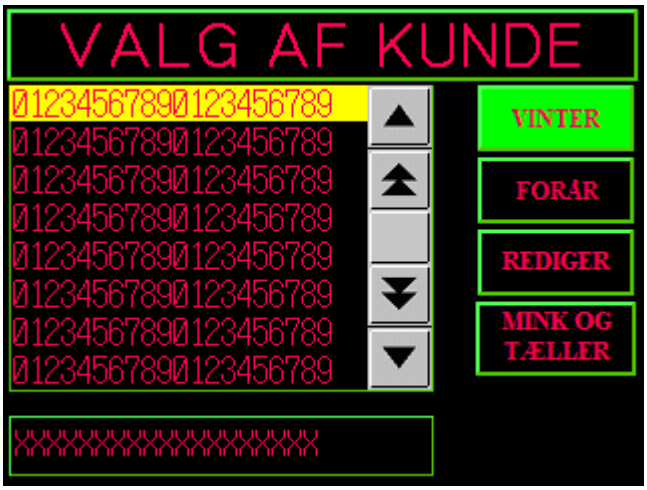
Thermal fail-safes are built into all motors. It is important to check motors for faults if the same thermal fail-safe is triggered several times in a row.



The machine cannot be started if the doors are open. You then have to press Reset to allow the machine to operate again.

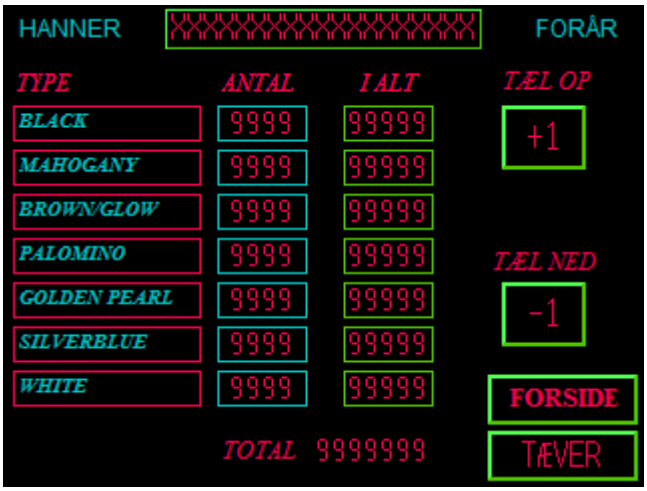


This is the PLC in cabinet no. 2.
When these LEDs are lit, the controls are ready for automatic operation. Note that the small LEDs marked with an asterisk (*) should flash very quickly.

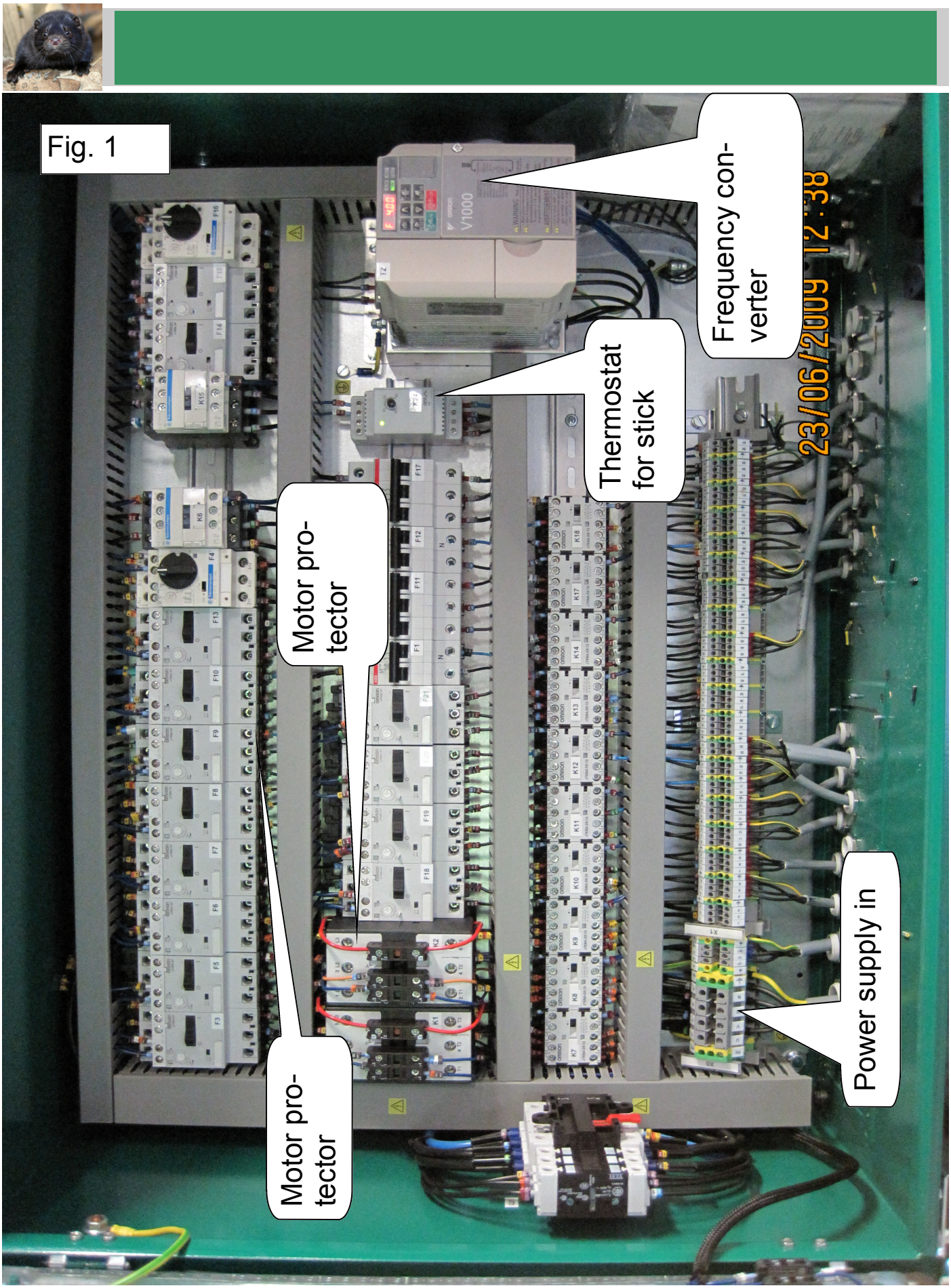


The customer index appears in screen no. 2 only.

This is a customer index to which you can add customers. You can then view data on how many pelts have been run and of what colour, and of whether spring/autumn males or females have been processed.



This is an example of data for males/spring and of the individual types.



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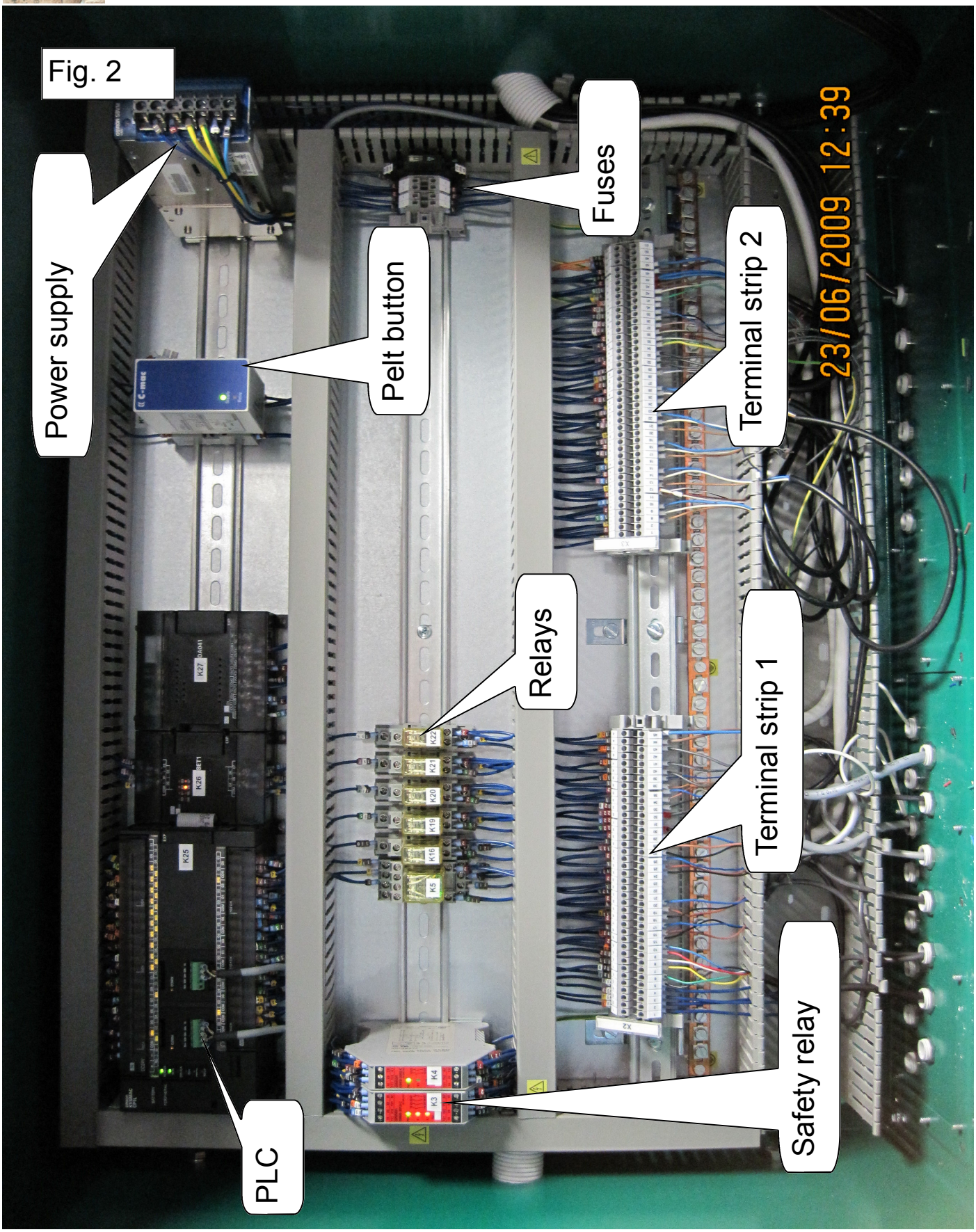

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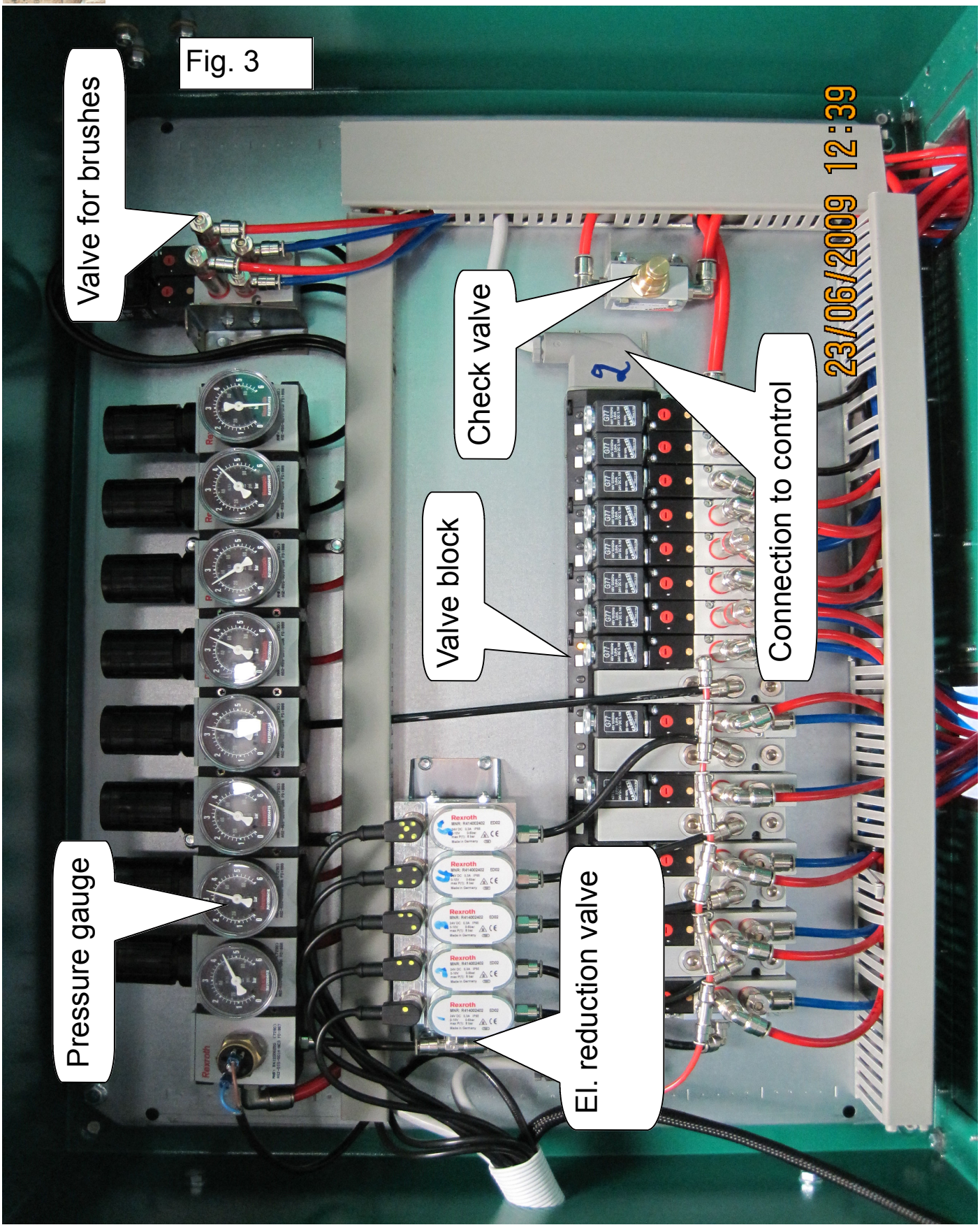

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Notes